

CLAIMS

We claim:

- 5 1. An electrical combination comprising:
 a power tool including a tool housing and an electric motor supported by
 the tool housing and selectively electrically connectable with a power source, the tool
 housing including a tool support portion;
 a battery electrically connectable with the electric motor such that the
10 battery selectively supplies power to the electric motor, the battery including an insertion
 portion; and
 an adapter separate from and connectable between the tool housing and the
 battery to support the battery on the tool housing and to electrically connect the battery
 with the motor, the adapter including an adapter housing defining an opening, the insertion
15 portion being insertable into the opening along an opening axis to support the battery on
 the adapter, the adapter housing further including an adapter support portion connectable
 to the tool support portion along an adapter attachment axis, the opening axis being
 generally parallel with the adapter attachment axis.
- 20 2. The combination as set forth in Claim 1, wherein the adapter support
 portion includes an adapter projection and an adapter groove, and wherein the tool support
 portion includes a tool projection and a tool groove, the adapter projection being
 engageable with the tool groove and the tool projection being engageable with the adapter
 groove to connect the adapter to the power tool.
- 25 3. The combination as set forth in Claim 1 and further comprising a locking
 assembly for locking the battery to the adapter, the locking assembly including
 a locking member movable between a locked position, in which the battery
 is locked to the adapter, and an unlocked position, and
30 an actuating member operable to move the locking member between the
 locked position and the unlocked position.
4. The combination as set forth in Claim 1 and further comprising a locking
 assembly for locking the adapter to the tool housing, the locking assembly including

a locking member movable between a locked position, in which the adapter is locked to the tool housing, and an unlocked position, and

an actuating member operable to move the locking member between the locked position and the unlocked position.

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5. The combination as set forth in Claim 1, wherein the battery includes a battery terminal assembly, wherein the power tool further includes a tool terminal assembly electrically connected to the motor, and wherein the adapter includes an adapter electrical assembly including

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a first adapter terminal assembly electrically connectable to the battery terminal assembly, and

a second adapter terminal assembly electrically connectable to the tool terminal assembly to electrically connect the battery to the motor to selectively transfer power between the battery and the motor.

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6. The combination as set forth in Claim 5, wherein the battery terminal assembly is supported on the insertion portion of the battery, and wherein the first adapter terminal assembly is supported in the opening defined by the adapter housing.

7. An electrical combination comprising:
a power tool including a tool housing and an electric motor supported by the tool housing and selectively electrically connectable with a power source, the tool housing including a tool support portion including a tool projection and a tool groove;
5 a battery electrically connectable with the electric motor such that the battery selectively supplies power to the electric motor, the battery including an insertion portion; and
an adapter separate from and connectable between the tool housing and the battery to support the battery on the tool housing and to electrically connect the battery
10 with the motor, the adapter including an adapter housing defining an opening, the insertion portion being insertable into the opening, the adapter housing further including an adapter support portion connectable to the tool support portion, the adapter support portion including an adapter projection and an adapter groove, the adapter projection being engageable with the tool groove and the tool projection being engageable with the adapter
15 groove to connect the adapter to the power tool.

8. The combination as set forth in Claim 7, wherein the insertion portion is insertable into the opening along an opening axis to support the battery on the adapter, and wherein the adapter support portion connects to the tool support portion along an adapter
20 attachment axis, the opening axis being generally parallel with the adapter attachment axis.

9. The combination as set forth in Claim 7 and further comprising a locking assembly for locking the battery to the adapter, the locking assembly including
a locking member movable between a locked position, in which the battery
25 is locked to the adapter, and an unlocked position, and
an actuating member operable to move the locking member between the locked position and the unlocked position.

10. The combination as set forth in Claim 7 and further comprising a locking
30 assembly for locking the adapter to the tool housing, the locking assembly including
a locking member movable between a locked position, in which the adapter is locked to the tool housing, and an unlocked position, and
an actuating member operable to move the locking member between the locked position and the unlocked position.

11. The combination as set forth in Claim 7, wherein the battery includes a battery terminal assembly, wherein the power tool further includes a tool terminal assembly electrically connected to the motor, and wherein the adapter includes an adapter electrical assembly including

5 a first adapter terminal assembly electrically connectable to the battery terminal assembly, and

a second adapter terminal assembly electrically connectable to the tool terminal assembly to electrically connect the battery to the motor to selectively transfer

10 power between the battery and the motor.

12. The combination as set forth in Claim 11, wherein the battery terminal assembly is supported on the insertion portion of the battery, and wherein the first adapter terminal assembly is supported in the opening defined by the adapter housing.

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13. A method of assembling an electrical combination, the method comprising the acts of:

providing a slide-on power tool configured to receive a slide-on battery;

providing a tower-style battery including an insertion portion;

5 providing an adapter separate from and connectable between the slide-on power tool and the tower-style battery to support the tower-style battery on the slide-on power tool and to electrically connect the tower-style battery with the slide-on power tool, the adapter defining an opening along an opening axis, the adapter further including a slide-on portion;

10 engaging the insertion portion of the tower-style battery in the opening in the adapter to support the tower-style battery on the adapter; and

engaging the slide-on portion of the adapter with the slide-on power tool to support the adapter on the slide-on power tool.

15 14. The method of Claim 13, wherein the slide-on power tool includes a tool housing including a tool support portion, the tool support portion including a tool projection and a tool groove, wherein the slide-on portion of the adapter includes an adapter projection and an adapter groove, and wherein the act of engaging the slide-on portion with the slide-on power tool includes the act of engaging the tool projection with
20 the adapter groove and the adapter projection with the tool groove.